

and 600 cc. of water, allowing the room to remain closed 14 hours. We made a slight mistake in our computation, and used 1 oz. more of cyanide than our formula called for.

The results were surprising and very gratifying. Every bedbug in every case was killed.

The fumigation was done June 1, and as I write, June 12, none of the eggs have shown any signs of hatching. It is impossible for me to say whether they are fertile or not, but it is reasonable to suppose that they are. We obtained them by confining a dozen or more adult bugs in a large vial, and on the second day we found eggs in abundance. The eggs must have been formed in the females under natural conditions in the bedsteads from which they were taken, and very likely the bugs were fertilized there before we collected the females.

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#### SOME NEW SPECIES OF WESTERN GEOMETRIDÆ.

BY JOHN A. GROSSBECK, NEW BRUNSWICK, N. J.

*Gymnocelis remorata*, new species.—Expanse, 16–17 mm. Head, thorax and abdomen pale creamy-white, the abdomen somewhat the darkest. Wings whitish, variegated with shades of small pale brown patches, which show up the ground colour in a series of transverse white lines. On the primaries the first of these white lines is near the base, inwardly edged with brown and outwardly fused with the ground colour. Intradiscal line geminate, begins at costa and extends outward to cell, then inwardly, dentate to inner margin. Median line geminate, originates at centre of costa and extends outwardly, the inner line bordering the discal spot outwardly, then runs obliquely dentate to centre of inner margin. Extradiscal line dentate, geminate, subparallel with median line. All these lines show up most prominently on the costal area of the wing; less so on the remainder of the wing, yet readily to be followed. Subterminal line single, finely dentate throughout its course. Terminal line brown, sometimes interrupted by white at the venules. The brown patches appear most plainly on the costa, especially between the intradiscal and median lines, immediately outward of the median line and between the extradiscal and submarginal lines. A rather prominent

blotch is near the outer margin between  $M_1$  and  $M_3$ , and another less distinct is at the anal angle; through the centre of these blotches the subterminal line runs. Cu. is usually lined with dark brown scales on the basal half or centre, and the veins of the media are also slightly marked with a similar colour inwardly of the extradiscal line. Discal spot dark brown, longer than broad, very distinct. Fringe whitish, silky, pale brown at the veins. Secondaries with about four white lines on basal half of wing, beginning at inner edge and disappearing toward centre. A geminate sinuous white line crosses at outer two-thirds and corresponds to the extradiscal line of fore wings. Subterminal line white, wavy. Terminal line brown, sometimes interrupted, distinctly wavy at inner angle. Discal spot dark brown, elongate, distinct. Beneath silky, cream coloured, the delineations of upper side faintly showing on costa. Discal spots faint and rather small.

Described from a number of specimens, representing both sexes, in the Rutgers College collection.

Habitat: Yuma County, Arizona, April 11-20.

*Sciagraphia Yavapai*, new species.—Expanse, 26 mm. General colour leaden-gray, with a reddish-umber hue and with black atoms sparsely scattered over the body and wings. Costa of primaries flesh coloured, marked with small but distinct black flecks on basal third and larger ones on the centre. Intradiscal line ochre-brown, narrow, begins one-fourth out on costa, and is slightly outcurved to inner margin. Extradiscal line concolorous with the first, begins on costa over two-thirds out from base, extends outwardly to  $M_1$ , then with a faint in-and-out curve to Cu. 1, and with a sharp inward semicircle to inner margin, ending two-thirds out from base. This line is marked on the costa by a distinct, rather large black spot, on the inner margin by a smaller one and by five dots on the veins from  $M_1$  to Cu. 2 inclusive. Terminal line a series of small intervenular spots. The basal and median areas are uniform in colouring, the outer area slightly darker and with a dark shade-spot in the centre bordering the extradiscal line. Discal spot an irregular elliptical ring with several ochre-brown scales at each end, indicating a median transverse line. Secondaries with numerous inconspicuous transverse dashes, giving the wing a finely-mottled appearance. A transverse ochre-

brown line extends from middle of wing to inner margin. Discal spot round, dusky. Beneath whitish-gray, the outer portion darker and all veins lined with ochreous; both wings profusely marked with minute transverse dashes that show up sharply on the light background. Discal spots distinct, rather large.

Type: One female in the collection of the writer.

Habitat: Yavapai County, Arizona, Aug. 20 (Hutson).

*Gonodontis ocellaria*, new species.—Expanse, 44–47 mm. at greatest width. Front, palpi and thorax bright buff, the abdomen pale buff. Primaries with apex acute, outer margin scalloped between the veins, extending outward from apex to  $M_3$ , then inward to rounded anal angle. Colour uniformly bright buff, washed with a faint grayish shade, most perceptible toward outer margin; costa with a number of slate-coloured specks, the largest at the beginning of the extradiscal line. Intradiscal line not strongly marked, whitish, bordered externally by a pale gray shade, beginning one-third out from base on costa, regularly outcurved to inner margin, where it almost disappears. Extradiscal line well defined, whitish, with a grayish border, internally originates on costa less than one-fourth in from apex, extends with an outward curve to  $Cu. 2$ , thence with a faint inward curve to inner margin. Distance between the two lines on costa double that on inner margin. Discal spot a clear white dot edged with brown. Marginal line deep orange; fringe pale yellow, marked with brown at the apices of the scallops. Secondaries brighter than primaries, more of a salmon colour, paler at base; outer margin evenly rounded and scalloped between the veins. A brown line crosses the centre, is broadest in the central portion, obsolete at the costa and faint at the inner margin. Beneath both wings pale buff, except at inner margins, where they are flesh-coloured. Costa of primaries and costal and basal areas of secondaries sparsely marked with brown specks. The transverse lines of upper surface, save intradiscal line of primaries, faintly reappear, and are marked with venular brown spots, which tend to join in the centre of the hind wing. Discal spots brown, small, present on all wings.

Types: Three males in Rutgers College and in the collection of the writer.

Habitat: Minnehaha, Arizona, Oct. 2 and 3 (Hutson).

This is the first American species that has scalloped wings like the type of the genus, *G. bidentata*, Clerck, of Europe. There is no other species in the genus with which it can be confused.

*Metanema brunneilinearis*, new species.—Expanse, 33 mm. at greatest width. Head, thorax and abdomen pale yellowish-white, sprinkled with gray scales, thickest on the abdomen. Apical border of abdominal segments destitute of gray scales, and appearing as pale rings to a grayish abdomen. Ground colour of both wings pale yellowish-white, rather profusely sprinkled with gray scales. Primaries with costa produced on basal third, apex acute, thence scarcely sinuous to prominent, acute angle at  $M_3$ , thence even to rounded anal angle. Intradiscal line pale brunneous, rather narrow, begins on costa more than one-third out from base, extends outwardly to vein R, then turns at right angles and runs, gently sinuous, to inner margin, ending one-third out from base. Extradiscal line sinuous, concolorous with first, but slightly broader, originates on costa one-fourth in from apex, and runs almost parallel with intradiscal line to inner margin. Basal area profusely sprinkled with gray scales, fewer on the costa toward intradiscal line. Median area with a sparse scattering of gray scales; discal spot large, round, dark brown. Outer area heavily overlaid with gray scales, except at outer margin from apex to  $M_3$ , and thickest in patches between the veins from  $M_1$  to anal vein bordering the extradiscal line. On the outer margin between  $R_5$  and  $M_1$ , and  $M_1$  and  $M_2$ , are two dark brunneous crescents with gray and flesh-coloured scales in the concavities. Fringe pale brunneous, checkered with brown at the veins. Secondaries with a single, almost straight pale brunneous line crossing the centre, both areas profusely overlaid with gray scales, less so centrally; discal spot in basal space large, brown, rather faint. Fringe pale brunneous, scarcely checkered with brown. Beneath, ground colour as above, the gray scales distributed as on upper surface, central space of both wings, the apex and veins bright ochreous.

Type: One female in Rutgers College collection.

Habitat: Verdi, Nevada.

Readily distinguished from its congeners by its rough-scaled appearance, suggesting *Eutrapela* rather than the smooth and evenly-clothed species of *Metanema*.